

# Single-Turn Continuous Rotation Analog Displacement Sensors



## FEATURES

- Conductive plastic potentiometer technology, infinite resolution
- Servo mount anodized light alloy housing
- Precious metal contacts
- Stainless steel shaft and bearings
- Applicable standards: NFC 93255, MIL R39023

## LINKS TO ADDITIONAL RESOURCES



QUICK REFERENCE DATA	
Sensor type	ROTATIONAL, conductive plastic
Output type	Output by turrets
Market appliance	Industrial, avionics
Dimensions	Ø 36, Ø 44, Ø 50, Ø 76

ELECTRICAL SPECIFICATIONS										
PARAMETER	POHR36	POHR44				POTH44	POTH50	POTH76		
Theoretical electrical travel (TET)	350° ± 3°	350° ± 3°				350° ± 3°	350° ± 2°	350° ± 1°		
Theoretical electrical travel (on request)	-	62.5°	90°	120°	120°	182.5°	210°	90°	-	-
Useful electrical travel (on request)	-	60°	90°	90°	119°	180°	180°	89°	-	-
Standard linearity (≤)	± 0.5 %	± 0.5 %				± 0.5 %	± 0.25 %	± 0.1 %		
Optional linearity (≤)	± 0.25 %, ± 0.1 %, ± 0.05 %	± 0.4 %, ± 0.25 %, ± 0.1 %, ± 0.05 %, ± 0.04 %				± 0.25 %, ± 0.2 %, ± 0.1 %, ± 0.05 %	± 0.1 %, ± 0.05 %, ± 0.03 %	± 0.05 %, ± 0.02 %		
Total resistance range (E3)	4.7 kΩ or 10 kΩ	4.7 kΩ or 10 kΩ				4.7 kΩ or 10 kΩ	4.7 kΩ or 10 kΩ	4.7 kΩ or 10 kΩ		
Tolerance on R <sub>n</sub>	± 10 %, optional: ± 20 %, ± 15 %, ± 5 %									
Output smoothness	< 0.1 % (on request: 0.5 %, 0.05 %, 0.025 %)									
Power rating at 70 °C	2 W	2.5 W			2.5 W	3 W	4 W			
Temperature coefficient	-300 ± 300 ppm/°C									
Wiper current	≤ 1 mA									
Recommended load impedance	≥ 1000 R <sub>n</sub>									
Insulation resistance	≥ 10 GΩ at 500 V <sub>DC</sub>									
Dielectric strength	1000 V <sub>RMS</sub> , 50 Hz, 1 min									

MECHANICAL SPECIFICATIONS						
PARAMETER		POHR36	POHR44	POTH44	POTH50	POTH76
Size		15	18	18	20	30
Running and starting torque (cN cm)	first stage	20	20	20	25	35
	additional stage	18	18	18	22	30
Moment of inertia (g cm <sup>2</sup> )	first stage	≤ 2.2	≤ 2.6	≤ 6	≤ 8	≤ 20
	additional stage	0.6	≤ 0.6	≤ 5	≤ 6	≤ 17
Weight (g)	first stage	50	80	100	100	230
	additional stage	12	12	50	55	80
Protection class		IP50				



PERFORMANCE	
PARAMETER	
Life	25M cycles
Temperature range	-55 °C to +125 °C
Rotation speed	600 rpm

**Note**

- Nothing stated herein shall be construed as a guarantee of quality or durability.

SAP PART NUMBERING GUIDELINES						
MODEL	SIZE (mm)	GANG	VALUE	LINEARITY	ANGLE	PACKAGING
POTH	44	1	472 = 4K7	B = 0.5 % C = 0.25 % D = 0.1 % E = 0.05 % (see "Electrical Specifications")	350	b = box
	50	2	103 = 10K			
	76	3				
POHR	36 44	4				
		5				
		6				
		7				
		8				
(max. number of stages: see "Dimensions")						

**DIMENSIONS** in millimeters

**POHR36**

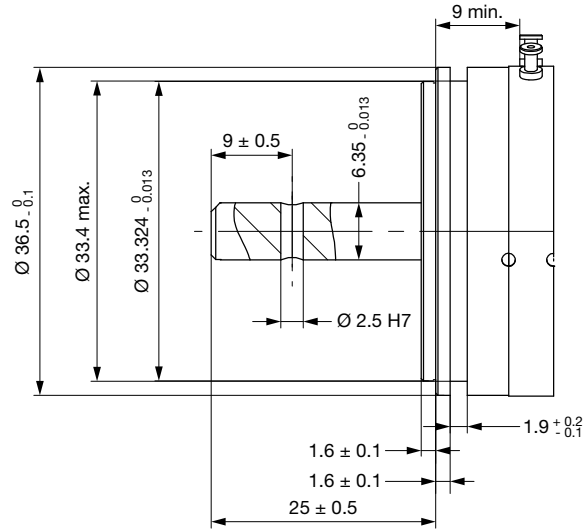
Number of cups:	1	2	3	4	5	6	7	8
L:	21	26	31	36	41	46	51	56



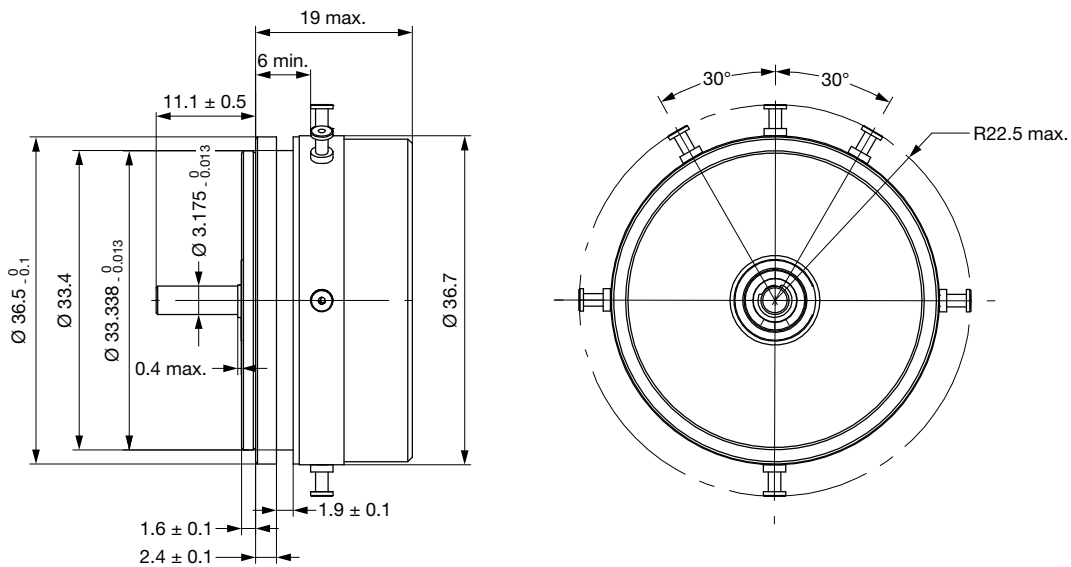
**DIMENSIONS** in millimeters

**DESIGNS ON REQUEST FOR POHR36**

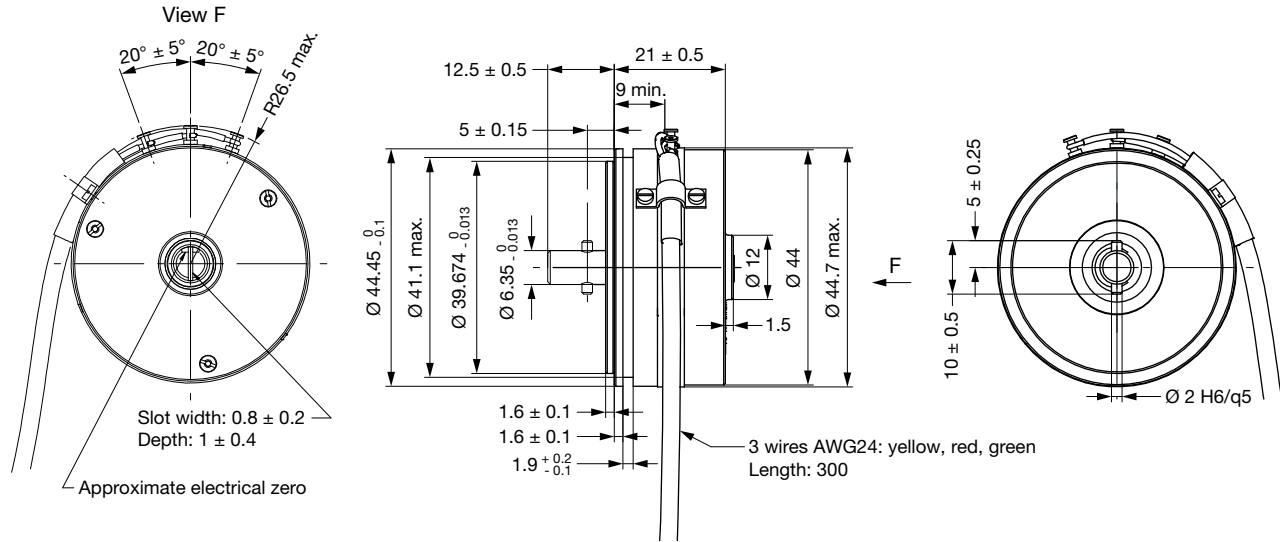
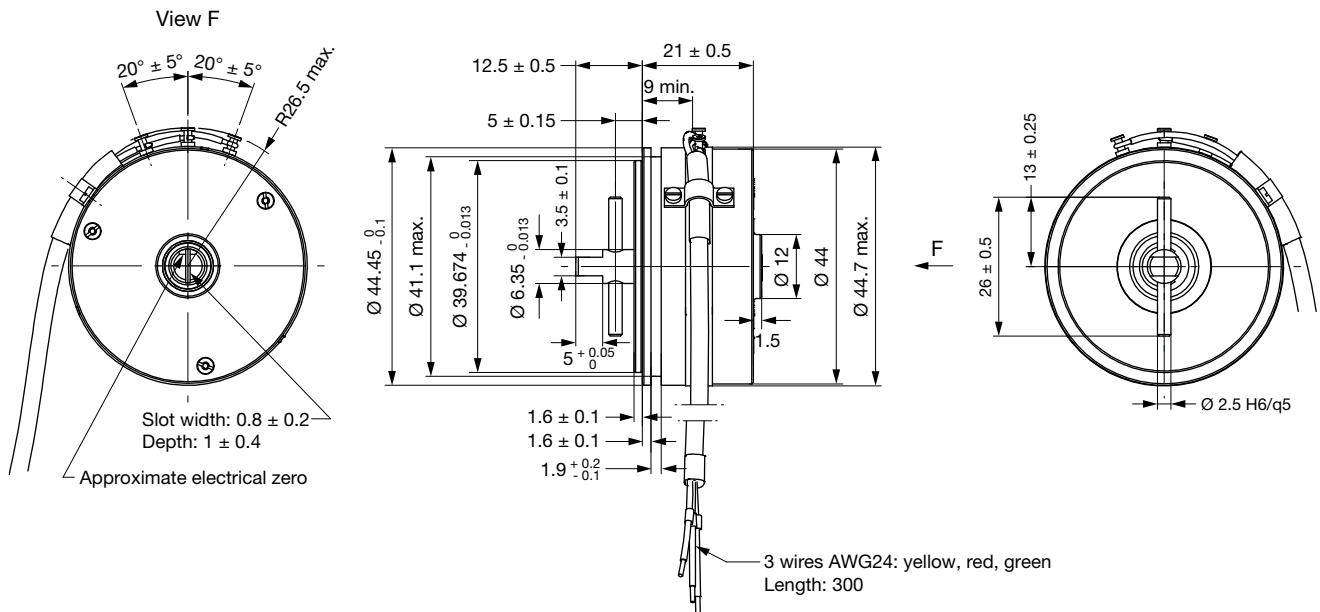
**OPTION 1**



**OPTION 2**

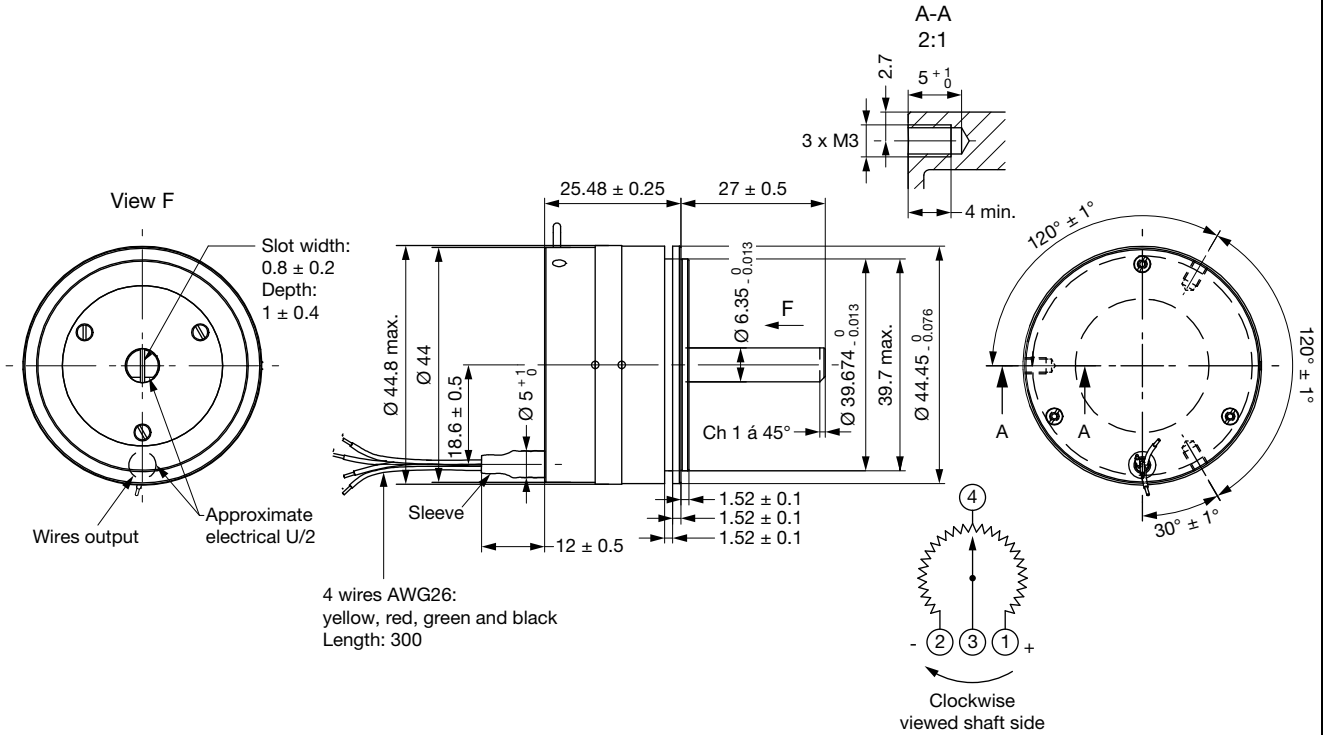




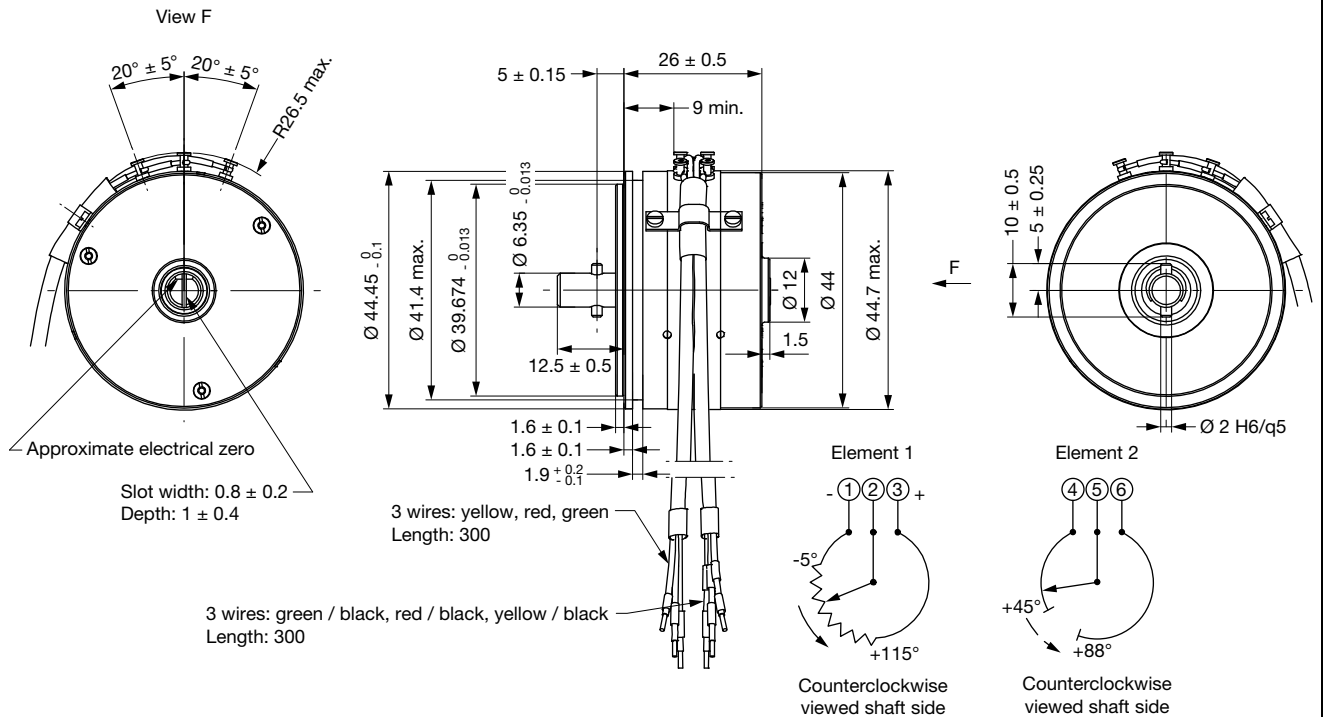
**DIMENSIONS in millimeters**
**OPTION 2**

**OPTION 3**


**DIMENSIONS** in millimeters

**OPTION 4**



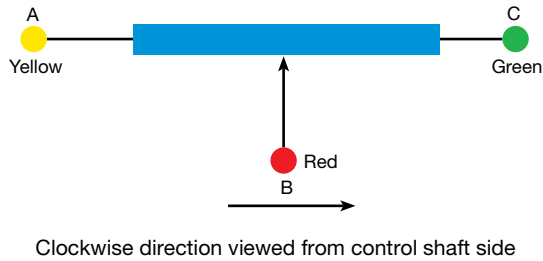
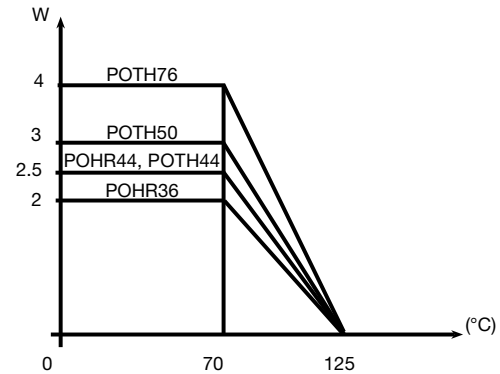
**OPTION 5**









**ELECTRICAL DIAGRAM**

**POWER RATING CHART**

**OPTIONS** (on request)

- Other ohmic values: 2.5 kΩ (POHR36); 1.6 kΩ, 2 kΩ, or 2.8 kΩ (POHR44); 1 kΩ (POTH44)
- Other tolerances on  $R_n$  (see “Electrical Specifications” table):  $\pm 20\%$
- Other linearities (see “Electrical Specifications” table): 0.2 % (POHR36)
- Other theoretical electrical travel:  $354^\circ \pm 1^\circ$  and  $120^\circ$  (with UET = 100°) (POHR36);  $120^\circ$  (with UET = 100°) (POHR44)
- Connectors (center tap)
- Wire outputs (only on POHR44 and POTH44)
- Through shaft
- Phasing between wipers:  $180^\circ \pm 2^\circ$  (POHR36 x 2)
- Specific function:
  - sine and cosine ( $360^\circ$ ) with accuracy  $\pm 0.2\%$
  - switch sector with accuracy  $\pm 1^\circ$  or  $\pm 30'$  (POHR44)
- Middle tap: POHR44 U/2  $\pm 0.5\%$
- For space application: removing of lubrication for tracks and ball bearings. The presence of lubrication or the choice of lubrication (case of space grease) is done in function of endurance life and using conditions (such choice could be considered whatever the potentiometer series from smallest size diameter 12 mm up to the biggest 76 mm and more for the kit designs)
- Protection resistor in series with wiper: 150 Ω; 300 Ω ( $\pm 15\%$ )
- Version waterproof: POHR44 (starting torque  $\leq 60$  cNcm)
- Electrical output by connector: plug Socapex: JT 06 RT 835 P023 (or equivalent) with cable length 1 m
- Version supplying voltage:  $6\text{ V} < U < 30\text{ V}$



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